During the present report period the problem of collisional
relaxation of a globular star cluster has been considered.
An approach based on the Fokker-Planck equation, in which
a description in $E-J$ space is obtained, has been completed
by Mr. Paul Easton under the supervision of Professor J.
Goldstein. This work will constitute Mr. Easton's doctoral
thesis and will be distributed as soon as Mr. Easton has
completed his thesis defense, currently scheduled for 5
January 1966.

At the same time the validity of the Fokker-Planck approach
to this problem has been called into question by Drs. Ira
Gilbert and J. Goldstein. The success of the Fokker-Planck
method in plasma physics seems to depend strongly on the
assumption of spatial homogeneity, whereas in the case of
globular clusters, the inhomogeneities are on the scale of
the Debye length itself.

In order either to verify the applicability of the Fokker-
Planck equation, or to replace it with a more suitable one,
an attempt is being made to describe the systems in terms
of the theory of correlation functions. Dr. Gilbert has
studied the equations for these functions and has obtained
an interpretation of the correlations in terms of polarization
clouds. The study is expected to illuminate the errors

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implicit in the conventional Fokker-Planck approach.

The program for the calculation of variable albedo radiative transfer solutions by the Monte Carlo technique has been written, but is still being debugged. The program has applicability to a very wide variety of problems, and appears to be very close to operating successfully.

A paper entitled "On Retarded Evoluation of Protostars" by Dr. J. A. Burke has been written. ████████████████
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J. Goldstein
Principal Investigator